

New chromosome counts for some Lactuceae (Compositae)

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Abstract

Somatic chromosome numbers of 44 species in 19 genera of Lactuceae were counted. Chromosome counts of five species, *Cicerbita tianschanica* (REGEL & SCHMALH.) BEAUVERD, *Chondrilla canescens* KAR. & KIR., *Rhagadiolus angulosus* (JAUB. & SPACH) KUPICHA, *Leontodon muelleri* (SCHULTZ BIP.) FIORI, *Scorzonera taurica* BIEB., have not been reported before, while one or only few chromosome counts are published yet for *Picris sprengerana* (L.) POIR., *Crepis leontodontoides* ALL., *Rhagadiolus stellatus* var. *edulis* DC., *Scolymus hispanicus* L., and *Tragopogon pterocarpus* DC.

Introduction

According to BREMER (1994), the Lactuceae comprise 98 genera and more than 1550 species. As part of a study of the systematics of the tribe we counted chromosome numbers for 44 different species of 19 genera.

Material and Method

Seeds were obtained through the international seed exchange and were grown in the greenhouse, determined, and voucher specimens were taken. Vouchers for all counts are deposited at the Herbarium Gatersleben (GAT). Root tips were collected early in the morning, rinsed in water and placed for one hour in Paradichlorbenzol, following the protocol of FUKUI (1996) and then fixed in ethanol-acetic acid (3:1). Before staining the root tips were transferred into HCl for 7–8 min at 37°C, then stained with 45 % aceto-carmine for at least 30 min and analysed by the squash method. Photos of the chromosomes can be obtained from the first author upon request.

Results and Discussion

The chromosome numbers of the species reported here (Table 1) range from $2n=6-32$, with only one species being polyploid (*Sonchus oleraceus*). Chromosome counts for *Cicerbita tianschanica*, *Chondrilla canescens*, *Rhagadiolus angulosus*, *Leontodon muelleri* and *Scorzonera taurica* have never been reported before, while 23 chromosome counts confirm the data of earlier studies unambiguously (*Arnoseris minima*, *Catananche caerulea*, *Crepis alpina*, *C. dioscoridis*, *C. foetida*, *C. leontodontoides*, *C. neglecta*, *C. setosa*, *C. sibirica*, *C. tectorum*, *Hyoseris radiata*, *H. scabra*, *Lactuca perennis*, *L. saligna*, *L. sativa*, *L. viminea*, *L. virosa*, *Leontodon hispidus* subsp. *glabratus*, *Picris hieracioides*, *Prenanthes purpurea*, *Rhagadiolus stellatus* var. *edulis*, *Tolpis barbata*, *Tragopogon dubius*, *T. orientalis*, *T. porrifolius* subsp. *australis*, and *T. pterocarpus*; see BABCOCK 1947, BABCOCK & JENKINS 1943, GOLDBLATT 1981, 1984, 1985, 1988, GOLDBLATT & JOHNSON 1990, 1991, 1994, 1996, 1998, 2000, and references therein). The counts for *Crepis aurea* reported by earlier workers (see above) are $2n=10$, 14 or 20, the variation in numbers pointing to a heterogeneous assemblage. This also accounts for the reported chromosome numbers of *Koelpinia linearis*, $2n=14$, 40, 42, 56, *Sonchus oleraceus*, $2n=32$, 36, 64, and *Tragopogon dubius*, $2n=12$, 24, 36. For six species also surveyed here two different chromosome numbers have been reported, *Crepis pulchra*, $2n=8$, 18, *C. rubra* "Alba", $2n=10$, 12, *C. sancta*, $2n=10-12$, *Hypochoeris maculata*, $2n=10$, 20, *Lapsana communis*, $2n=14$, 16, and *Scolymus hispanicus*, $2n=10$, 20. In all these cases, our findings confirm earlier counts.

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References

- BABCOCK, E. B. 1947. The Genus *Crepis*, part 1. *University of California Publications in Botany* 21: 1–198.
- BABCOCK, E. B. & J. A. JENKINS 1943. Chromosomes and phylogeny in *Crepis*. *University of California Publications in Botany* 18 (12): 241–292.
- BREMER, K. 1994. *Asteraceae. Cladistics & Classification*. Timber Press, Portland, Oregon.
- FUKUI, K. 1996. Plant chromosomes at mitosis. In: FUKUI, K. & S. NAKAYAMA (eds.), *Plant chromosomes: laboratory methods*, pp. 1–17. CRC, Boca Raton.

GOLDBLATT, P. 1981. *Index to Plant chromosome numbers 1975–1978*. Monographs in Systematic Botany from the Missouri Botanic Garden, Braun-Brumfield, Ann Arbor.

GOLDBLATT, P. 1984. *Index to Plant chromosome numbers 1979–1981*. Monographs in Systematic Botany from the Missouri Botanic Garden, Braun-Brumfield, Ann Arbor.

GOLDBLATT, P. 1985. *Index to Plant chromosome numbers 1982–1983*. Monographs in Systematic Botany from the Missouri Botanic Garden, Braun-Brumfield, Ann Arbor.

GOLDBLATT, P. 1988. *Index to Plant chromosome numbers 1984–1985*. Monographs in Systematic Botany from the Missouri Botanic Garden, Braun-Brumfield, Ann Arbor.

GOLDBLATT, P. & D.E. JOHNSON 1990. *Index to Plant chromosome numbers 1986–1987*. Monographs in Systematic Botany from the Missouri Botanic Garden, Braun-Brumfield, Ann Arbor.

GOLDBLATT, P. & D.E. JOHNSON 1991. *Index to Plant chromosome numbers 1988–1989*. Monographs in Systematic Botany from the Missouri Botanic Garden, Braun-Brumfield, Ann Arbor.

GOLDBLATT, P. & D.E. JOHNSON 1994. *Index to Plant chromosome numbers 1990–1991*. Monographs in Systematic Botany from the Missouri Botanic Garden, Braun-Brumfield, Ann Arbor.

GOLDBLATT, P. & D.E. JOHNSON 1996. *Index to Plant chromosome numbers 1992–1993*. Monographs in Systematic Botany from the Missouri Botanic Garden, Braun-Brumfield, Ann Arbor.

GOLDBLATT, P. & D.E. JOHNSON 1998. *Index to Plant chromosome numbers 1994–1995*. Monographs in Systematic Botany from the Missouri Botanic Garden, Braun-Brumfield, Ann Arbor.

GOLDBLATT, P. & D.E. JOHNSON 2000. *Index to Plant chromosome numbers 1996–1997*. Monographs in Systematic Botany from the Missouri Botanic Garden, Braun-Brumfield, Ann Arbor.

Table 1. Chromosome nos. (2n) in taxa of Lactuceae

| No. | Plants | Counts |
|-------|--|--------|
| bg73 | <i>Arnoseris minima</i> (L.) SCHWEIGGER & KOERTE | 18 |
| bg54 | <i>Catananche caerulea</i> L. | 18 |
| bg19 | <i>Chondrilla canescens</i> KAR. & KIR. | 16 |
| bg259 | <i>Cicerbita tianschanica</i> (REGEL & SCHMALH.) BEAUVERD | 18 |
| bg222 | <i>Crepis alpina</i> L. | 10 |
| bg221 | <i>Crepis aurea</i> (L.) CASS. | 10 |
| bg225 | <i>Crepis conyzifolia</i> (GOUAN) A. KERNER | 8 |
| bg232 | <i>Crepis conyzifolia</i> (GOUAN) A. KERNER | 10 |
| bg226 | <i>Crepis dioscoridis</i> L. | 8 |
| bg227 | <i>Crepis foetida</i> L. | 10 |
| bg252 | <i>Crepis leontodontoides</i> ALL. | 10 |
| bg228 | <i>Crepis neglecta</i> L. | 8 |
| bg231 | <i>Crepis pulchra</i> L. | 8 |
| bg229 | <i>Crepis pulchra</i> L. | 8 |
| bg22 | <i>Crepis rubra</i> "Alba" L. | 10 |
| bg253 | <i>Crepis sancta</i> (L.) BABC. | 10 |
| bg254 | <i>Crepis setosa</i> HALLER F. | 8 |
| bg255 | <i>Crepis setosa</i> HALLER F. | 8 |
| bg224 | <i>Crepis sibirica</i> L. | 10 |
| bg177 | <i>Crepis tectorum</i> L. | 8 |
| bg257 | <i>Crepis vesicaria</i> subsp. <i>haenseleri</i> (BOISS.) SELL | 8 |
| bg62 | <i>Hyoseris radiata</i> L. | 16 |
| bg39 | <i>Hyoseris scabra</i> L. | 16 |
| bg238 | <i>Hypochaeris maculata</i> L. | 10 |